UNIVERSAL SERVICE IN THE ECTEL REGION
DRAFT WHITE PAPER

Section I. Background Issues

1. Defining the problem: telecom policy, digital divide, or social obligation?

With this White Paper, ECTEL seeks to initiate a process leading to formation of an integrated regional policy towards the provision of affordable access to public communications services in an emerging competitive telecommunications market place.

In traditional telephony terms, this issue is referred to as "Universal Service." With the onset of the Internet however, the discussion of these issues has widened to encompass affordable access to data networks and online information. These issues come under the rubric of "Digital Divide." In addition to these concerns, there is a set of issues that relate to the accessibility and usability of network services for the physically challenged, as well as more general access to emergency services. We refer to these issues as "Social Obligations."

Historically, Universal Service and Social Obligations were matters addressed by the single monopoly provider. They were handled through a system of internal cross-subsidies, whereby high margins earned in profitable services and market segments were used to cover the lower margins or losses incurred in meeting the Universal Service Obligation (USO) and Social Obligations.[1]

In the emerging competitive marketplace for telecommunications, it is necessary to re-examine the concepts of Universal Service, consider its relationship to the Digital Divide, and reconsider the means of collecting and distributing any funds needed to support necessary subsidies.

In the following sections, we lay out the issues as we understand them, and indicate our preliminary judgments as to their resolution. We seek comments from all interested parties that can help us to arrive at a policy approach that meets the requirements of the Telecommunications Act, 2000.

2. The Requirements of the Telecommunications Act 2000
   The Act delineates in paragraph 3 (2) a number of objectives that require balancing:
   a. The operation of a universal service regime so as to ensure the widest possible access to telecommunications at an affordable rate in order to enable the population to share in the freedom to communicate over an efficient and modern telecommunications network;

[1] Henceforth, Universal Service and Social Obligations will be addressed together simply as "USO" unless the context demands otherwise.

b. Fair pricing and the use of cost-based pricing methods by telecommunications providers;
c. Fair competition practices by telecommunications providers;
d. The introduction of advanced telecommunications technologies and an increased range of services;
e. The public interest and national security are preserved.

3. USO, Access Deficits, Interconnection and Pricing

USO issues are complicated because they are wrapped up in the monopoly legacy that defines services according to network elements, and prices services with little regard for costs. Further complications arise when one introduces competitors that require interconnection into this regime. Thus any policy affecting USO also affects pricing and interconnection policies. These in turn must take account of the dominance of the incumbent operator and the potential for abuse of that dominance. Therefore, USO policy cannot be established, implemented or administered in isolation, but must be part of an overall policy framework.

The relationship among these issues arises from the system of accounts used by most telecommunications monopolists around the world, including Cable and Wireless in the ECTEL territories.

CALCULATING THE ACCESS DEFICIT

The incumbent equates its Universal Service Obligation with its "Access Deficit." The calculation of the deficit is based on the incumbent's accounting practice, which is based on some form of Fully Allocated Cost approach. Typically, it takes the following form:

Service Category	**Local Access**	**Local Usage**	**Long Distance 1**	**Long Distance 2**	
REVENUE	+	+++	+++++	++++++++++	
COST	----------	--	---	--	
MARGIN	---------	+	+++	++++++++	

This table shows the typical (albeit greatly) simplified accounting results for a telephone company. Rates and revenues are high in long distance and low in access. Margins are large and positive in long distance, and negative in local. In particular, there is a large negative margin for Local Access. This is the "Access Deficit."

Incumbents recommend several steps to deal with the Access Deficit in a competitive environment:

- Price Rebalancing: lower the price of long distance and international services while raising the price of Local Access and Local Usage. The rebalancing would retain revenue-neutrality.

- Interconnection Charges: Create a new service called "Interconnection" that is charged the competitors. This charge is typically equal to the Fully Allocated Cost of Local Access plus Local Usage. The charge is doubled for trunk transport competitors because they use local access and usage for both Call Origination (often called "access") and Call Termination. Note that the charges for Interconnection are higher than the retail price because they are based on the fully allocated costs, not on retail prices that are arguably subsidized.
- Access Deficit Charge: The incumbent often does not fully raise the price it charges to end users for network access by the amount that would offset the reductions in prices for other services.[2] Because of this, it claims that competitors who use the local access network should pay an Access Deficit Charge applied both to access and call termination on top of their Interconnection charges. This is justified as a contribution to the incumbent's Universal Service Obligation. For example, in the case of Dominica, where Marpin Communications seeks to provide services over its own local access network, Cable & Wireless has insisted that Marpin pay an access deficit charge for calls terminated onto the Cable & Wireless network, but that it should pay no reciprocal charge for calls from Cable and Wireless customers that terminate onto the Marpin network. This asymmetry is based on the argument that only C&W has the obligation to serve all of Dominica, and that its FAC accounting system shows that it loses money in providing those domestic services in Dominica. This shows how the issues of USO, retail pricing, interconnection, and Access Deficits are intertwined.

4. Universal Service and Dominance

A further concern is raised by the dominant position of the incumbent in the telecommunications market. At the beginning of liberalization, it will have nearly 100 percent share of local access lines, and its dominance of the market will be a reality for many years. Therefore, it is essential that new entrants be able to terminate the calls from their few customers onto the incumbent network. In the terms of competition law, the function of Call Termination is an "essential facility."[3] There is also a social and economic objective to interconnection based on the necessity that any customer of a public telephone network be able to communicate with any other telecommunications customer, regardless of the identity of the provider or the technology in use. This is

[2] The incumbent usually blames the failure to rebalance on regulatory constraints. However, there are can be strategic considerations as well. British Telecom over a number of years did not raise local access rates to the maximum level that would have been permitted by Oftel.

[3] The "essential facilities" doctrine is a principle in antitrust law that addresses a particular type of "refusal to deal." The doctrine applies when a firm possesses market power over a particular asset or scarce resource, access to which is imperative to the viability of would-be competitors. To be essential, the resource must be not just helpful, but vital to its survival. Cases have been decided in Canada, the US,and the European Union, with slightly different standards in each. Under US case law (MCI v AT&T 708 F.2nd 1081 at 1132), a plaintiff must generally prove:

1. Control of the essential facility by a monopolist
2. a competitor's inability to practically or reasonably duplicate the essential facility;
3. the denial of the use of the facility to a competitor;
4. the feasibility of providing the facility to the competitor.

referred to as “any-to-any” communications, and its preservation is a key goal of public policy.

If the incumbent is allowed to set monopolistic prices for call termination, it can raise the costs per minute of its rival to a point where it is unable to effectively compete. If that rival is competing in the market segment that is profit making, the incumbent can catch the new entrant between falling retail prices as a result of tariff-re-balancing, and high charges for interconnection. Thus, where the incumbent invokes universal service, the entrant sees a price-cost squeeze and abuse of dominance.

The regulator is caught between these two views. On the one hand, universal service and any-to-any communications are important social and economic policies, and the Telecommunications Act 2000 directs that ECTEL and the NTRCs address those goals. On the other hand, the Act also identifies as an equal goal fair, cost-based pricing and fair competition.

In order to balance these considerations, ECTEL takes the following view:

- The access deficit is a consequence of a particular set of accounting assumptions generated by the FAC accounting practices of Cable & Wireless. Those practices may be judged “reasonable” under accounting standards, but they are based on a set of service definitions, cost allocation algorithms, and pricing strategies that were developed under monopoly, are not transparent, and are probably not sustainable in a competitive marketplace.
- Even if the methodology that generates the access deficit is judged to be valid, the number produced by the calculation is certain to change as prices change in reaction to market forces, and as costs change in response to the searches for efficiency that are brought about by competitive markets.
- International experience with access deficit charges suggests that regulators have dealt with them through rate adjustments. The UK in particular, while accepting access deficit charges conceptually, declined to apply them to long distance entrants until they had reached 25% market share in order to avoid the imposition of high cost burdens on new operators striving to achieve economies of scale. The primary beneficiary of this policy in the UK was a subsidiary of Cable & Wireless, Mercury Communications.
- Faced with uncertainty about the calculation, size, and duration of the access deficit and the substantial danger that an access deficit charge will have anticompetitive effects, ECTEL has grave doubts about its application in interconnection pricing. However, those concerns will be addressed separately.
- Insofar as the Universal Service Obligation is concerned, ECTEL regards the access deficit as a pricing problem. With one exception, Universal Service will be approached separately from the access deficit, and ECTEL seeks to determine the best mechanism for achieving this goal in a way that is consistent with a competitive marketplace and that balances the objectives of the Act. The exception is to treat any access deficit payments by a carrier as an offset to its contribution to the USF.

Section II. Designing a Universal Service Program for a Competitive Market

In designing a Universal Service Program that implements the Telecommunications Act 2000, ECTEL recognizes certain necessary principles:

a. Competitive and Technological Neutrality: Universal service policy should have the least possible effect on the workings of the marketplace. There is no dispute that all licensed operators should support universal service in a way that is neutral with respect to technology and proportional to position in the marketplace. But competitive neutrality also implies that universal service support should have the least possible impact on prices and costs of operation.

b. Minimum fund needed to accomplish the goal: Consistent with the goal of competitive neutrality, the funds raised or diverted should be the minimum needed to achieve the goal of universal service at affordable rates. This of course begs the question of a detailed, specific, quantifiable goal. We address this issue below.

c. Target efficiency: Under the monopoly structure, subsidies arguably existed between services. All consumers of a subsidized service received benefits regardless of need; conversely all consumers of subsidizing services paid subsidy regardless of their ability to bear the burden. In a competitive marketplace, these arrangements do not meet the standards and goals delineated in the Telecommunications Act 2000.

d. Administrative Transparency: The process by which universal service funds are collected and distributed must be trusted to accomplish two things – serve the people of the ECTEL territories, and operate in a way that meets the goals outlined above. To do this, it is vital that the entire process be independent of the operators, open, and transparent. Only in this way will the process be trusted and avoid charges of bias, favoritism, manipulation, or corruption.

Section III. Implementation Issues

1. How large a fund is needed?

The Telecommunications Act 2000 establishes that there shall be a Universal Service Fund to which all parties shall contribute an equal portion of gross revenue (Section 44). One cannot determine the amount to be collected unless one first specifies how it will be spent. The Act clearly contemplates as one option that the Fund will be designated to telecommunications providers that, as a condition of their license, are designated as the universal service provider in each territory. However, para. 45 (1) also leaves the door open to consider other ways to promote universal service.

2. What will the Fund be used for?

a. Sharp definition of the USO service(s): The Telecommunications Act 2000 defines the services that shall be included as universal service. These are: public voice telephony, internet access, telecommunications services to schools, hospitals and similar institutions, and the disabled and physically challenged; or other service by which people access efficient, affordable and modern telecommunications.
b. Calculation of net costs of provision: The Act specifies that the "actual cost of making available the required universal service" shall be the guide for determining the compensation. (para 45 (3)). In determining "actual costs" a number of considerations must be addressed:

i. Subsidies clearly should not be provided to the provision of services that are commercially viable. To do so would violate the requirements of fair pricing and fair competition, since unsubsidized operators would be competing against a subsidized price from the universal service provider. Subsidies should only go to loss-making provision of the defined services.
ii. Identification of "loss-making" can be approached in a number of ways: by service; or by customer. Using service definitions is the traditional monopoly approach, but this leads to the problems described above regarding access deficits. Moreover, using services is subject to changes in service definitions, will subsidize all users of the service, so it is not target efficient, and risks penalizing users that move from one provider to another, with anti-competitive effects. The exception to this principle is the case of Social Obligations. These should be subsidized as service categories.

The second option makes more sense in a competitive environment. Subsidies would be calculated on the basis of a provider's users that generate insufficient revenues from all the services they consume to cover the costs of serving them. The subsidy could follow the user regardless of the carrier or the technology that provides the service. Through this mechanism, market forces would enable the lowest cost provider to offer the services, there would be the least distortion of competition, and because subsidies would be based on users that meet qualifying criteria, the subsidy mechanism would be target-efficient.

ECTEL envisions that there will likely be three categories of users that could qualify for subsidy: rural users and certain rural payphones, certain low-income households, certain public institutions such as schools and libraries, and the physically handicapped.

With these categories identified and quantified, it would be possible to identify the revenues currently generated from them, subtract the specific or estimated costs of providing the specified services to them, and calculate the net amount of subsidy needed for the universal service fund, given a socially acceptable price level.

c. Data collection and carrier obligation to support: ECTEL looks to the carriers for the necessary data to make the calculations described above. The data request needed to evaluate the size of the USO will be distributed to operators once a conclusion is reached as to the parameters for measurement.

3. Who gets the money?

It is important to maintain the neutrality of the USO with respect to competition. Ideally, USO payments should go to end-users based on the criteria of need (low income and physically handicapped), high cost of service (rural) and social benefit (schools and libraries). However, there is also the consideration that the Fund must be administered efficiently. It would be administratively burdensome for ECTEL or the NTRC to maintain the kinds of records and systems needed to provide payments directly to end-

users. Therefore, we tentatively conclude that it is more practical for the operators to track the numbers of their users that qualify for subsidy in each of the approved categories, calculate the net losses (if any) generated from providing qualifying services, and bill the Fund Administrator on a quarterly or semi-annual basis. Records would be subject to independent audit and customer details including revenues and costs would be treated as commercially sensitive information.

4. Who pays into the Fund?

a. The Telecommunications Act 2000 specifies that all operators must pay into the USF an equal proportion of their gross revenues. There is no dispute that all operators should fairly contribute. However, the use of "gross revenues" as the basis for payment has raised concerns.

Concern #1. The term "gross revenues" taken at face value would seem to mean (in the case of an international carrier) its worldwide revenues. This interpretation would extend local taxing authority outside the jurisdiction of the NTRC and ECTEL.

Concern #2. Using gross revenues makes no distinction between long established operators that are profitable and those just starting out, and as yet unprofitable.

Concern #3. Using gross revenues makes no adjustment for payments to other operators for services such as interconnection, settlements, or services resold. Applying the USF contribution without such adjustments results in double counting of the revenues, once to the seller of the service to end users, and again as a service provided by one operator to another operator.

Concern #4. In the light of convergence, does the term "gross revenues" include earnings from services that are not offered under the terms of a telecommunications license? Must a cable TV operator that provides video services under a Broadcast License pay into the USF based on the revenues earned from providing entertainment video? How should the revenues earned from the sale of Yellow Pages advertising be treated?

b. In the face of these concerns, ECTEL is inclined to define "gross revenues" to mean "eligible gross revenues." Eligible Gross Revenues would be defined as revenues earned from the provision of PSTN and related telecommunications services (e.g. Directory services) to the territories of ECTEL, including revenues earned from the provision of outgoing and incoming international telecommunications services, but not including revenues from services provided under other licenses (e.g. broadcasting or Internet services), nor revenues from universal services that are designated by the NTRC as being provided in lieu of payments into the Fund, less payments received from other operators for services purchased, whether as a purchased input (e.g. interconnection or access deficit charges) or for resale, (e.g. emergency services, operator and DQ services, etc.)

c. "Pay or Play" option: A concern arises out of the likelihood that an operator may be willing to provide the universal service itself, either on a commercial (unsubsidized) basis, or for a lesser subsidy than might be required by the designated universal service provider. There is also the option to provide certain forms of universal service by following the highly successful approach used by Chile. In the Chilean approach, the government identified projects to deploy telephone service to unserved or under-served

areas. It then used a tendering procurement process to obtain bids to provide the service. In this way, Chile ensured that the service was deployed at the minimum cost of subsidy and using the most efficient technology. In any case, an operator that is providing a universal service in lieu of paying into the Fund to subsidize another operator that is providing that service should not be obliged to contribute to the Fund on the basis of the revenues earned from providing the service.

d. Build Out Requirements: Some countries seek to achieve universal service goals by imposing build-out requirements. Cable & Wireless explicitly claims this as part of their monopoly obligation when they argue for the access deficit charge.[4] Such requirements suffer from several problems:
   1) In using build-out requirements to achieve universal service, Government is in effect imposing an off-budget tax one part of the telecommunications network to provide investment funds for another.
   2) Build-out requirements lack transparency. At one extreme, the entire cost of the build-out, including most operating costs, might need to be cross-subsidized by other profitable parts of the network. This might be the case in marginal land areas with low population density. At the other extreme, the build-out might be so profitable that it will occur anyway without a subsidy. Since the tax incidence of the build-out depends on so many different factors, it is extremely difficult to estimate the "implied" tax and to ensure that it is levied equally on all operators. There is even less transparency if the build-out is financed by access deficit charges that are paid to an incumbent operator (see above).
   3) In a competitive environment, the ability to provide cross-subsidies from one part of the network to another will rapidly be eroded by price rebalancing.

   For these reasons, ECTEL concludes that the use of build-out requirements as a means to achieve universal service is inconsistent with the objectives laid out above.

5. Administration of the Fund

a. National or ECTEL-wide?: There is considerable disparity in telephone penetration and income levels across the ECTEL and other Caribbean territories.

Telephone Penetration per 100 population[5]

Antigua-Barbuda		47
Bahamas		40
Barbados	2000	46
Dominica		29

[4] Build-out requirements for universal service should not be confused with a requirement that scarce public resources (e.g. spectrum) be utilized as part of a licensing agreement. Such a requirement might be imposed in order to prevent speculation in licenses.

[5] http://www.itu.int/ITU-D/ict/statistics/

Grenada		33
Jamaica		20
Martinique		43
Puerto Rico		34
St. Kitts-Nevis	2000	57
St. Vincent	2000	22
Trinidad-Tobago		24
US VI		57

If ECTEL is intended to be a unified economic space, then it follows that the USF should be managed as a centralized function that funnels funds to the most needy areas. A model for this approach is the United States, which in the monopoly era prior to 1984, averaged costs nationwide, and thereby provided subsidies to high cost areas. This would involve funds flowing from e.g. St. Kitts-Nevis to St. Vincent, but that is a fundamental tenet of a single economic space. One advantage of a centralized approach is that funds can be aggregated to complete projects that would be beyond the capability of each country acting alone. A second advantage lies in the network externality. By increasing telephone subscribership in the countries with the lowest teledensity, the greatest marginal increase in value is conferred on all network users in the ECTEL economic space. Third, economic activity is stimulated by increased teledensity, and targeting the least developed areas of ECTEL will quickly raise the average for the region as a whole, while providing the maximum boost to the most disadvantaged segment. Fourth, a single Fund would require less management staff, so that less of the resources would be used up in administrative costs. Fifth, a single Fund under oversight by the ECTEL Board or the Council of Ministers would be less subject to parochial manipulation and political influences. Sixth, collection and distribution of the Fund would be done under a single policy framework that could be devoted to region-wide projects as well as individual national projects.

The alternative approach is for each country to retain the funds generated within it. This has the advantage of keeping subsidy funds within the area that provides them, but has the disadvantage that economic disparities across the region will not be alleviated. Countries with less robust telecommunications sectors will attract less competition and investment, and accordingly have a reduced universal service fun relative to more prosperous areas.

ECTEL tentatively concludes that a centralized fund would provide the most benefit to the region as a whole, by allowing targeted and aggregated funding to the neediest areas, and providing a single common policy approach

b. Ministerial Control or Independent Trustee: At one level, the choice of control mirrors the issue above. If a centralized Fund is determined to provide the most benefit, then it should be housed under an Independent Trustee under an arrangement that provides regular reports and audits. Even if a national approach is taken, a similar structure could be created whereby authorized persons could draw funds on a national basis from a centralized USF managed by an Independent Trustee. The creation of separate national

USFs would incur costs, but if the funds are managed within a creditable banking institution, transparency need not suffer.

The danger is that with the availability of large sums of money under loose oversight and relaxed fiduciary responsibility there is a temptation to use it for purposes other than maximum promotion of universal service. Politics, favoritism, and corruption are a fact of life. Transparency and accountability are crucial to the credibility of a liberalized market, as the Enron affair has taught.

ECTEL tentatively concludes therefore that a centralized Universal Service Fund, managed under an Independent Trustee with oversight by the Council of Ministers of the ECTEL countries offers the best option for efficient management, transparency and accountability.

6. Measurement and Tracking of Results

a. Project evaluations: A process is needed to evaluate the outcomes of projects and initiatives that are funded from the USF. This is an elementary tool of management needed to evaluate results and manage the Fund. The administrative processes and associated resources must be put in place as part of the implementation of the USO policy.
b. Exceptions and exemptions: There should be regulatory exemptions for Acts of God, force majeur, and such other normal exceptions as usually apply in contracts.
c. Penalties and Sanctions for Non-payment: If a licensed operator fails to pay into the Fund according to its obligation, ECTEL and/or the NTRC should apply sanctions including fines, and potentially revocation of license. However, no operator should have the authority to impose sanctions on another operator for non-payment into the USF except where authorized by ECTEL or the appropriate NTRC. In addition, no dominant operator should be able to terminate or withhold services in the event of a dispute over payment of access deficit charges or universal service contributions except with the approval of ECTEL and/or the NTRC until such time as any conflict resolution procedures have been exhausted, including judicial review
d. Audit and audit trails: Every operator must track and make available the data necessary to audit its payments and receipts associated with the USF. In addition, the administrative body responsible for the USF shall publish a publicly available independently audited annual report that fairly shows the financial status of the Fund and the transactions it has undertaken cumulatively and in the past year.
e. Penalties and sanctions for non-performance: Where monies from the Fund have been disbursed in support of a particular project, and the operator in receipt of those funds has not delivered the services contracted, the Fund Administrator should have the power to recover the funds, including applicable interest, and apply penalties such as performance bond forfeiture, assignment of relevant assets to another operator, sale of assets, and exercise the normal rights under contractual default.

Section III. Other Issues

There are a number of other issues that are wrapped together with the issue of universal service.

a. Carrier of last resort: The Telecommunications Act 2000 refers to the designation of a universal service carrier in each territory. It is necessary to interpret this designation in the context of a liberalized and competitive telecommunications marketplace. New entrants will make their investment and entry decisions on the basis of market information and profitability. They will make their exit decisions similarly. Provided that there are sufficient competitive options available, and provided the services in question are not viewed as essential services, operators should be free to enter and exit as they see fit. However, for basic services, there must be a safety net so that users are not left without any service provider. It is this safety net that is provided by the designation of "universal service carrier" as the carrier of last resort.

   To the extent that the backstop provider demonstrates that the provision of the designated basic services in the particular area under consideration is offered at a financial loss, support from the USF would be warranted to bring returns up to the level needed to cover the cost of capital and operating expenses involved.

b. Tariff rebalancing, access deficit charges, and cross-subsidies: The relationship among these issues arises out of the FDC accounting systems, discussed above, and will not be repeated here. However, for the avoidance of doubt, ECTEL reiterates its view that any access deficit charges paid by other operators to Cable and Wireless under negotiated or imposed interconnection agreements should be treated as an offset to contributions to the USF.

Section 4. Overcoming the Digital Divide

Digital Divide issues arise out of concerns for regional and national economic development and growth.[6] The term "digital divide" refers to the perception of a growing gap between developing and developed nations and between certain population groups in the availability to them of low-cost ubiquitous digital networks. There are at least two aspects to the Digital Divide:

- The first refers to the inadequacy of the necessary network infrastructure for transmitting digital information.
- The second is that low levels of educational attainment can prevent the citizens of developing nations from participating in the New Economy, either as employees of new economy companies, or as capitalist owners of these companies.

Solutions for digital divide issues are not well developed because there is limited experience in thinking about them. The Internet did not really come into existence in a public way until the deployment of the World Wide Web in about 1995. Most solutions are based on community or village centers. Funding for these has tended to come from NGOs or private sector donations. For example, in Costa Rica, the Entebbe Foundation

[6] Digital Divide issues arise out of a different set of economic underpinnings and policy concerns than universal service issues. The former comes from a concern over economic development and international competitiveness. The latter arises from the network externality whereby an any-to-any network is more valuable, the more subscribers it has.

has developed a stand-alone pod under a program called Lincos. In the pod are six computers along with printers and software, as well as an outdoor classroom, a TV and VCR. The pod is contained in a modified truck container that can be deployed by helicopter, truck or boat. The pod is equipped with a satellite dish that makes it possible to use distance learning techniques, both live and through the VCR and computers. Upstream communications is provided through dial up telephone lines, which must be provided by the village. Numbers of these pods have been deployed in Costa Rica, the Dominican Republic and Guatemala.[7] There are other approaches that have been deployed elsewhere.

WHAT IS NEEDED TO OVERCOME THE DIGITAL DIVIDE?

a. FOCUS ON NEW INFRASTRUCTURE: The benefits of the digital economy cannot be achieved without the existence of ubiquitous, inexpensive digital networks. A key issue facing both developing and developed nations is the replacement of 19th century wireline telephone networks with 21st century broadband digital networks. The capital needed to accomplish this transformation is beyond the reach of any national government or individual company. Competitive markets are needed to deliver the necessary investment capital to build an effective information infrastructure.

   The good news is that all countries are more or less at the starting line of this process. No country has a fully deployed digital infrastructure. In the United States, a vast majority of New Economy activities take place at slow speeds over the copper analog network of the telephone network. The European Union has only recently emphasized e-commerce at its Madrid meeting in 2000. The ECTEL region is not so far behind in the New Economy. And it may even have the advantage of having less of the old telecommunications infrastructure to replace, relative to more developed nations.

   What is needed is a policy framework that encourages the necessary investment. Telecommunications policy is not merely about sectoral reform, it is a key element of economic development and growth policy, because it is a prerequisite of the New Economy.

b. FOCUS ON SKILLS: The skills needed by "Knowledge Workers" are different than the skills required for workers in manufacturing, agriculture and industrial sectors. Productivity increases in the New Economy are not primarily derived from doing things "better, faster, cheaper." They also come from doing new and different things. The innovation and technological progress that arises from these new things have a large positive effect on economic growth.

   Education can even partly offset the lack of infrastructure. For example, India, despite having a low average level of telecommunications availability has developed a thriving software industry on the basis of its well-educated population. Singapore is leveraging its small geographic size to deploy the needed network infrastructure, but

[7] Information is available at www. lincos.com.

it is also relying heavily on the training and entrepreneurship of its well-educated population to make it the telecommunications hub of Southeast Asia. Malaysia has emphasized telecommunications as a key development sector since it implemented Vision 2020 as its development strategy.

c. ENCOURAGE ENTREPRENEURIAL APPROACHES: As an example**,** Indonesia has developed a substantial network of communications kiosks called "Wartels" and "Warnets." These kiosks, located in villages and neighborhoods, resell basic telecommunications services to customers who lack private access to these services. These are a platform for the future expansion of information services in Indonesia since, in some cases, they also provide more advanced services such as fax and Internet access. Most important, the operators of these kiosks will form a nucleus of savvy entrepreneurs who will eagerly adopt and commercialize other opportunities as they become available.

An Action Plan is under development that lays out tasks that address these issues. These tasks include the development of a modern policy and legal framework, human capacity building, infrastructure development, and the development of ICT applications.

While these are important areas of public policy and merit consideration for subsidy and other encouragement, it is fundamental that one cannot go online if there is no line or it is unaffordable. ECTEL therefore affirms its primary focus to be on the development and deployment of the ubiquitous and affordable telecommunications infrastructure that is the prerequisite to bridging the Digital Divide.

Section 5. The Way Forward

- Clear and practical direction is needed to resolve the policy choices described above. The consultation initiated by this White Paper is the tool to achieve this clarity.
- Revenue and Cost data and analysis are required to quantify the size of the USO , including Social Obligations.
- A determination must be made as to the socially acceptable prices to be charged for subsidized services.
- Given the data above, the size of the USF can be determined and the appropriate levy imposed.
- The overlap between USO and the Digital Divide is the subsidization of connectivity for schools and libraries. However, to maximize the benefit of these subsidized services, connectivity must be combines with a legal framework, training, and applications development an ddeployment.